

A further clamping device 3 in accordance with an embodiment of the present invention is shown schematically in Figs. 8 and 9 and can be provided with additional rings 31 and/or 32 which may be used to prevent arcing in a sputtering magnetron. One of the tube ends (2) is part of a rotating cylindrical target and can be advantageously used in a reactive sputtering process. Use of the clamping device 3 in accordance with this embodiment prevents arcing when used in a vacuum deposition process. The numbering of the various parts in Figs. 8 and 9 corresponds with those of the previous embodiments, except in previous embodiments the material to be sputtered 8 was applied onto a backing tube 7. In this embodiment the material to be deposited may be in the form of a massive tube 2 provided with an integral ring 37 fixed to the end thereof and having the appropriate clamping flange 11. Thus, in accordance with this embodiment the second end portion is 40. However, the present embodiment is not limited thereto but may include the flange fixing methods described with reference to Figs. 1 and 3.

In the claims:

Please amend claims 13, 15, 16, 17, 20, 22, and 24 to read as follows:

§ 2.6 0.13. (Amended)

A vacuum tight coupling for end portions of two tubular sections, a portion of the two tubular sections having an inner space, the size of the inner space of a first end portion being smaller than that of a second end portion, the second end portion having a flange extremity axially slidable over the first end portion to abut the flange extremity against a peripheral outer abutment ring on said first end portion, the

coupling comprising at least one sealing ring located between said end portions in their overlapping contact area and further comprising a clamping ring with a substantially cylindrical outer surface and being composed of clamping elements, each clamp element having a semi-circular or U-shaped cross section with an inwardly oriented recess, said recess enclosing said flange extremity and said abutment ring, said recess cooperating with the flange extremities to positively, solidly and axially clamp the abutment ring against the flange extremity, the clamp elements being fixed to each other at their extremities with fixing means comprising in at least one place on the clamping ring bolting means, the axis of which is perpendicular to the longitudinal axis of the coupled tubular sections and substantially tangential to the clamping ring periphery.

32  
(cont.)  
.. Sub 0.1 > 15. (Amended)

A coupling according to claim 37, wherein clamping elements the, besides said bolting means for fixing their extremities in one place comprise pivoting means for fixing them in their opposite extremities.

16. (Amended)

33  
A coupling according to claim 13, wherein the first end portion comprises a tubular insert coupled between a tubular section and said second end portion, and wherein the insert end facing the tubular section is a ring which can slide axially over said tubular section whereas the opposite insert end is a ring over which said second end portion can slide.

17. (Amended)

A coupling according to claim 13, wherein the length of the overlap portion between the first and second tube portions is 50% or less of the inner diameter of the first portion.

B<sub>3</sub>  
(cond)

Sub 0.7 20. (Amended)

A coupling for a cylindrical sputtering target for end portions of two tubular sections, a portion of the two tubular sections having an inner space, the size of the inner space of a first end portion being smaller than that of a second end portion, the second end portion having a flange extremity axially slidable over the first end portion to abut the flange extremity against a peripheral outer abutment ring on said first end portion, the coupling comprising at least one sealing ring between said end portions in their overlapping contact area and further comprising a clamping ring with a substantially cylindrical outer surface and being composed of clamp elements, each clamp element having a semi-circular or U-shaped cross section with an inwardly oriented recess, said recess enclosing said flange extremity and said abutment ring, said recess cooperating with the flange extremities to positively, solidly and axially clamp the abutment ring against the flange extremity, the clamp elements being fixed to each other at their extremities with fixing means comprising in at least one place on the clamping ring bolting means, the axis of which is perpendicular to the longitudinal axis of the coupled tubular sections and substantially tangential to the clamping ring periphery.

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Sub 0.1 22. (Amended)

A coupling for a cylindrical sputtering target according to claim 38, wherein the ring halves, besides said bolting means for fixing their

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extremities in one place comprise pivoting means for fixing them in their opposite extremities .

B<sub>1</sub>-  
(concluded)

Sub 9.24. (Amended)

A coupling for a cylindrical sputtering target according to claim 20, wherein the length of the overlap portion between the first and second tube portions is 50% or less of the inner diameter of the first portion.

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Please insert new claims 33 through 38 as follows:

Sub 9.33. (New)

A coupling according to claim 13, wherein the length of the overlap portion between the first and second tube portions is 30% or less of the inner diameter of the first portion.

34. (New)

A coupling according to claim 13, wherein the length of the overlap portion between the first and second tube portions is 20% or less of the inner diameter of the first portion.

35. (New)

A coupling for a cylindrical sputtering target according to claim 20, wherein the length of the overlap portion between the first and second tube portions is 30% or less of the inner diameter of the first portion.

36. (New)

A coupling for a cylindrical sputtering target according to claim 20, wherein the length of the overlap portion between the first and second tube portions is 20% or less of the inner diameter of the first portion.

37. (New)

A coupling according to claim 13, wherein the clamping elements are two substantially equal ring halves.

38. (New)

A coupling for a cylindrical sputtering target according to claim 20, wherein the clamp elements are two substantially equal ring halves.

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